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(use as many sheets as necessary)

Sheet one of one

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Filing Date	February 23, 2004
First Named Inventor	Yukihiro MATSUMOTO
Art Unit	1764
Examiner Name	Virginia MANOHARAN
Attorney Docket Number	2004-2150.ORI

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2280 HV Rijswijk (ZH)
☎ +31 70 340 2040
TX 31651 epo nl
FAX +31 70 340 3016

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recherche

Henkel, Feiler & Hänzel
Möhlstrasse 37
81675 München
ALLEMAGNE

EINGEGANGEN

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Henkel, Feiler & Hänzel

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Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire Nippon Shokubai Co., Ltd.	

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☒ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

☒ abstract

☒ title

☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract:

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REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





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EUROPEAN SEARCH REPORT

Application Number
EP 04 00 5570

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (InLCI.7)
X	US 4 019 964 A (FICKEL R GENE) 26 Apr 11 1977 (1977-04-26) * column 2, line 51 - column 3, line 20 * * column 8, line 11 - line 38; figure *	1-3	B01D3/14 C07C51/44 B01D3/32
X	US 5 876 570 A (THIGPEN HUBERT H) 2 March 1999 (1999-03-02) * figure 2 *	1-3	
X	WO 97/44298 A (WYTCHERLEY RANDI WRIGHT ; LEE FU MING (US); GENTRY JOSEPH C (US); GLIT) 27 November 1997 (1997-11-27) * figure 1 *	1-3	
X	DE 196 31 332 A (LINDE AG) 27 November 1997 (1997-11-27) * figures 2a-5 *	1-3	
X	US 4 559 108 A (AHLBERG DAVID T) 17 December 1985 (1985-12-17) * column 3, line 12 - line 59; figures *	1-3	
X	DE 12 08 291 B (BASF AG) 5 January 1966 (1966-01-05) * figure *	1,2 3	B01D C07C
A			
X	GB 1 452 377 A (BRITISH PETROLEUM CO) 13 October 1976 (1976-10-13) * page 2, line 57 - line 84; figure *	1-3	
X	US 4 056 444 A (WEICHT BODO ET AL) 1 November 1977 (1977-11-01) * column 3, line 4 - line 8; figure *	1-3	
X	US 4 372 822 A (MULLER WERNER C ET AL) 8 February 1983 (1983-02-08) * column 3, line 46 - line 64; figure *	1-3	
	-/--		
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 August 2004	Examiner Van Belleghem, W
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document</p> <p>T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document</p>			

EPO FORM 1508 (03.02) (P4401)



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EUROPEAN SEARCH REPORT

Application Number
EP 04 00 5570

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Incl.7)
X	WO 90/07367 A (ALKO AB OY) 12 July 1990 (1990-07-12) * figure 2 *	1-3	
D, A	EP 1 097 742 A (NIPPON CATALYTIC CHEM IND) 9 May 2001 (2001-05-09) * the whole document *	1, 4	
A	US 4 469 558 A (WATSON JAMES M) 4 September 1984 (1984-09-04) * column 8, line 6 - line 23; figure 1 * * column 9, line 42 - line 53; figure 2 *	1-3	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 August 2004	Examiner Van Belleghem, W
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document</p> <p>T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application C: document cited for other reasons A: member of the same patent family, corresponding document</p>			

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EPO FORM 1503 (01/02) (Page 1)

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EP 04 00 5570

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27-08-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4019964	A	26-04-1977	BR 7603838 A	05-04-1977
			CA 1054553 A1	15-05-1979
			ES 448838 A2	01-12-1977
			FR 2324334 A2	15-04-1977
			GB 1549743 A	08-08-1979
			IT 1083952 B	25-05-1985
			JP 1166155 C	08-09-1983
			JP 56124401 A	30-09-1981
			JP 57046881 B	06-10-1982
			JP 51151677 A	27-12-1976
US 5876570	A	02-03-1999	JP 7206716 A	08-08-1995
WO 9744298	A	27-11-1997	AU 2937997 A	09-12-1997
			CN 1225081 A , B	04-08-1999
			ID 16811 A	13-11-1997
			JP 3109838 B2	20-11-2000
			JP 11509868 T	31-08-1999
			KR 2000015878 A	15-03-2000
			TW 450993 B	21-08-2001
			WO 9744298 A1	27-11-1997
			US 5877385 A	02-03-1999
			US 5849982 A	15-12-1998
			ZA 9702966 A	21-11-1997
DE 19631332	A	27-11-1997	DE 19631332 A1	27-11-1997
			ZA 9704354 A	24-08-1998
US 4559108	A	17-12-1985	CA 1179291 A1	11-12-1984
			AU 553811 B2	31-07-1986
			AU 8979882 A	05-05-1983
			DE 3268595 D1	27-02-1986
			EP 0080808 A1	08-06-1983
			JP 1628593 C	20-12-1991
			JP 2056395 B	30-11-1990
			JP 58083089 A	18-05-1983
DE 1208291	B	05-01-1966	GB 900457 A	04-07-1962
GB 1452377	A	13-10-1976	NONE	
US 4056444	A	01-11-1977	DE 2419723 A1	11-12-1975
			FR 2268546 A1	21-11-1975
			GB 1477419 A	22-06-1977
			JP 50148280 A	27-11-1975

EPO FORM P/049

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 04 00 5570

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27-08-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4372822	A	08-02-1983	NONE	
WO 9007367	A	12-07-1990	FI 80218 B	31-01-1990
			AU 4822390 A	01-08-1990
			EP 0456647 A1	21-11-1991
			WO 9007367 A1	12-07-1990
EP 1097742	A	09-05-2001	JP 2001131116 A	15-05-2001
			CN 1295058 A	16-05-2001
			EP 1097742 A1	09-05-2001
			US 6596129 B1	22-07-2003
			ZA 200006116 A	30-05-2001
US 4469558	A	04-09-1984	BE 875237 A4	16-07-1979
			DE 2914226 A1	23-10-1980
			US 4272344 A	09-06-1981
			AR 223490 A1	31-08-1981
			AU 530417 B2	14-07-1983
			AU 4831879 A	24-01-1980
			BR 7904432 A	13-05-1980
			CA 1130754 A1	31-08-1982
			JP 55015500 A	02-02-1980
			US 4252615 A	24-02-1981
			ZA 7902423 A	28-05-1980

EPO FORM P4459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

(e)

DE 196 31 332 A 1

German laid-open application

Removal of interfering components from the solvent circulation of gas scrubbers

Method for the removal of interfering high-boiling or else solid components from the solvent circulation of regenerable absorption processes, for example gas scrubbers, liquid/liquid extractions or extractive distillations, in which the solvent is regenerated by stripping the absorbed components in at least one regeneration stage, the solvent comprising at least one high-boiling main component and one lower-boiling minor component, having the steps:

- a reboiler (10, 10a, 10b, 16) operating as a pulsed evaporator, so that the components to be removed are first enriched in it or its circulation and are then ejected from the process,
- to this reboiler or to these reboilers operating as evaporator is fed, in addition to the solvent stream to be evaporated, a further stream (via line 14), which further stream consists of the lower-boiling minor component of the solvent or in which this minor component is at least enriched, and
- the vapour generated in this reboiler or these reboilers operating as evaporator (10, 10a, 10b, 16) is used in the regeneration stage as stripping vapour.

The invention achieves the fact that to remove interfering high-boiling components, only small expenditure in terms of apparatus and connections is necessary.